



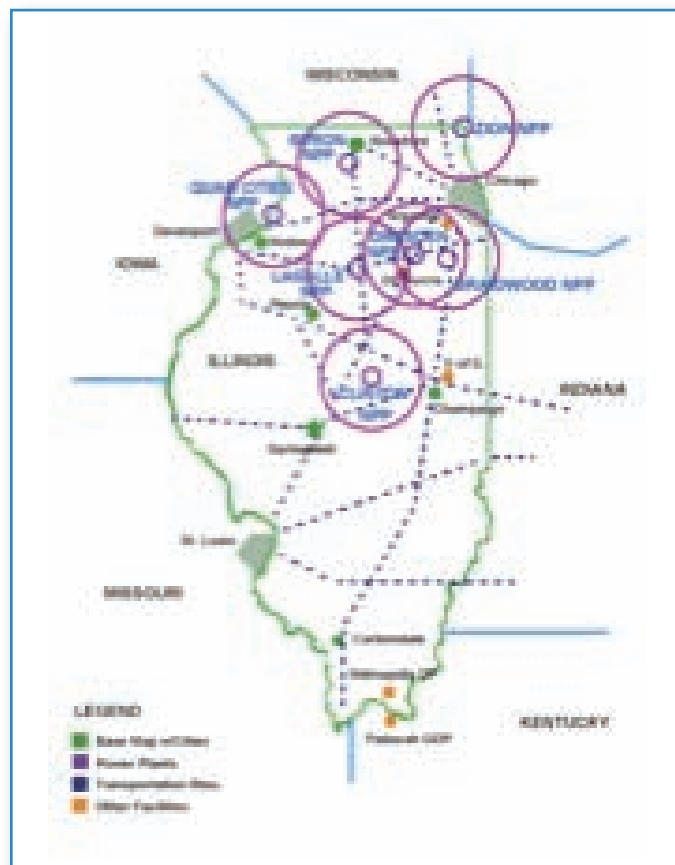
Illinois Emergency Management Agency:

Radiological Task Force

There are eleven commercial nuclear power reactors at six different sites in Illinois. That's more than any other state in the United States. If Illinois were a country, we would rank about seventh in the world for nuclear power generation. We also have two permanently shut-down reactors at Zion in Lake County and one at Dresden Station in Grundy County. Spent fuel is stored at all seven current and former reactor sites and at a site near Dresden station owned by General Electric. Illinois is also home to a uranium hexafluoride processing facility, issues over seven hundred and forty radioactive materials licensees, and is a major U.S. corridor for shipments of radioactive material, radioactive waste, and spent nuclear fuel.

The Illinois Plan for Radiological Accidents or IPRA is a comprehensive emergency response plan for radiological accidents. It outlines responsibilities for state, county, and municipal jurisdictions that might be affected by an accident at a nuclear facility and sets state-wide policy for our emergency response efforts. To respond to radiological emergencies in Illinois, the Bureau of Nuclear Facility Safety led the development of the IEMA RADIOLOGICAL TASK FORCE (RTF).

The RTF is the scientific assessment arm of IEMA's coordinated response. It is an integrated, totally National Incident Management System (NIMS) and



Incident Command System (ICS) compliant radiological response team capable of performing radiological assessment for any level of response. Because the RTF is a NIMS compliant, ICS based structure,

it is scalable for response to any type or level of incident response. The team is composed of Health Physicists, Reactor Engineers, Managers, Technicians, and support staff, all trained to respond to any radiological emergency, including an incident or accident at a nuclear power plant. The Radiological Task Force staff members come from IEMA's Division of Nuclear Safety, who is involved on a daily basis with all aspects of radiation safety and protection. The Bureau of Radiation Safety licenses and inspects users of radiation producing machines and radioactive material in Illinois, ensuring that people know how to use radiation and radioactive materials safely. The Bureau of Environmental Safety monitors the environment and oversees environmental clean up activities. The Bureau of Nuclear Facility Safety is dedicated to monitoring and inspecting nuclear power plants and training and preparing the Radiological Task Force for an emergency response at any of the facilities in Illinois.

The Radiological Task Force response is managed from the RADIOLOGICAL EMERGENCY ASSESSMENT CENTER or REAC. This highly sophisticated facility is home to one of the most advanced remote monitoring systems in the world. It receives reactor, radiological release, and environmental data from IEMA's unique Remote Monitoring System. REAC coordinates the response through the State Incident Response Center.



Computer models produce what are called “projections”. Based upon what is known about the event

and its possible development, the model gives a prediction for the off-site impact. The REAC Manager takes the results of the work performed by the Health Physics and Reactor Specialists and decides what the appropriate protective action recommendations for the public might be. These recommendations are always made after discussions with the licensee (nuclear utility or other) and any adjacent states, if they are affected. We do not have to necessarily agree – but we do discuss it. The recommendations are given to the State Incident Response Center (SIRC) where they get input from other state agencies about the practical operational considerations of a protective action. The SIRC then passes the recommendation to the Governor who issues the actual recommendation to the counties.



To confirm the projections performed in REAC, the Radiological Assessment Field Team or RAFT staff are dispatched to the affected area to measure radiation in the environment, collect environmental samples, ensure contamination control and sample chain of custody, analyze samples, and coordinate with other field responders. From the RAFT Command Vehicle, the RAFT Supervisor directs the field teams to monitoring and sampling locations following the sampling strategy set out by the Health Physics Specialist in REAC. The RAFT Supervisor not only has to find the actual radiation in the environment, but is also responsible for the safety of the workers on his field teams. He closely

monitors their radiation exposure and their length of time in the field.

The field team vehicles carry equipment and supplies that allow them to detect and measure radiation and take samples of air, water, soil, and all types of vegetation and crops. They have redundant communications systems and also carry protective clothing for themselves, tools, procedures, forms and everything else they need to do their jobs.

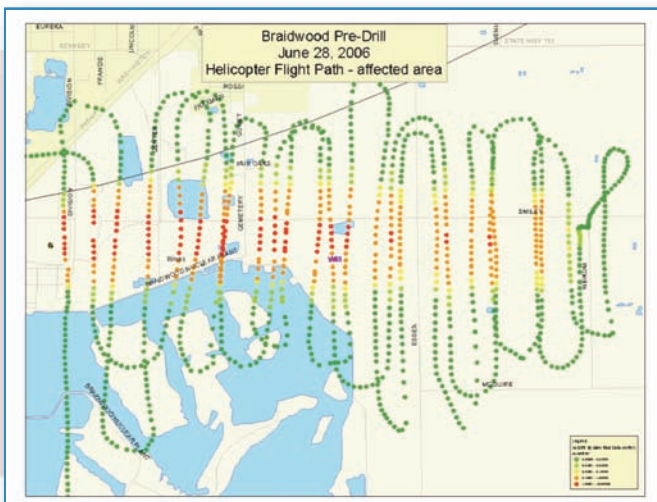
All radiological emergency responders in the state, including the RTF Field Teams, are equipped with dosimetry packets. These contain sensitive radiation detectors to measure the amount of radiation that each person is exposed to. The packets contain both a pencil dosimeter that can be directly read by the worker so they can track their own exposure, and a luminescent dosimeter that is the “official” dosimeter of record. The packets also contain Potassium Iodide, a non-prescription drug that can flood the thyroid with stable iodine and help radioactive iodine that they might be exposed to pass through their body more quickly, rather than concentrating in their thyroid glands.

Our newest tool for field teams is the Automated Location and Environmental Radiation Telemetry System or ALERTS. This system was designed and built by IEMA Bureau of Nuclear Facility Safety staff. A Global positioning system or GPS is combined with a sensitive radiation detector, a ruggedized computer, mapping software, a structured data system and satellite communications to transmit location and radiation detection information real-time

to our computers in REAC and at the RAFT Staging area.

This system uses the latest technology to give specialists and decision-makers color coded map-based information on real radiation levels in the environment. And because it is automated, it eliminates transcription errors. Through an agreement with IDOT Aeronautics, we have placed one of our ALERTS packages on an IDOT helicopter with a special detector. Since they are not limited by roads, you can see the difference in area coverage when they transmit their data back to us. The IDOT pilots train with our field team staff and are considered emergency workers with the same dose limits as our IEMA staff.

When field teams complete their assignments, be they aerial or land based, they return to our RAFT Staging area where they, their car, their equipment, and the samples they are bringing back are surveyed for possible radioactive contamination by our Contamination Control Staff. It is their job to keep the staging area free from radioactive contamination and to establish and maintain chain of custody for all environmental samples.



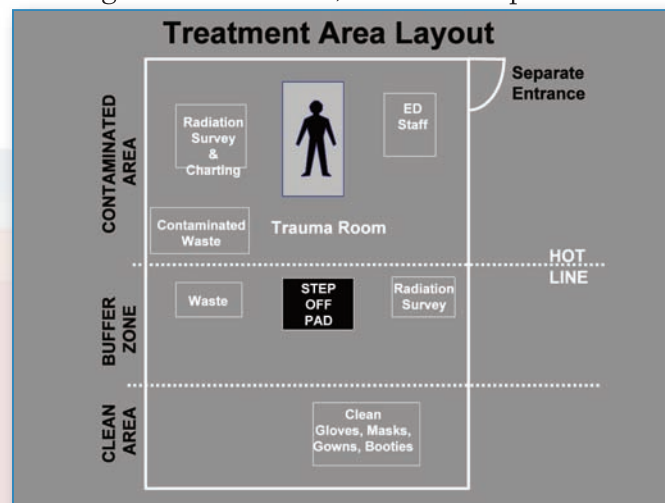
RAFT has its own mobile laboratory. The lab has highly sensitive counting equipment that can detect radiation down to environmental background levels and can analyze all types and isotopes of radiation.



monitor everyone who comes to the Reception Center. With our newest equipment we can quickly scan a person on crutches, in a wheelchair, or on an ambulance gurney. The units can even be used to monitor pets and, in another configuration, allow us to quickly monitor vehicles and equipment if needed.

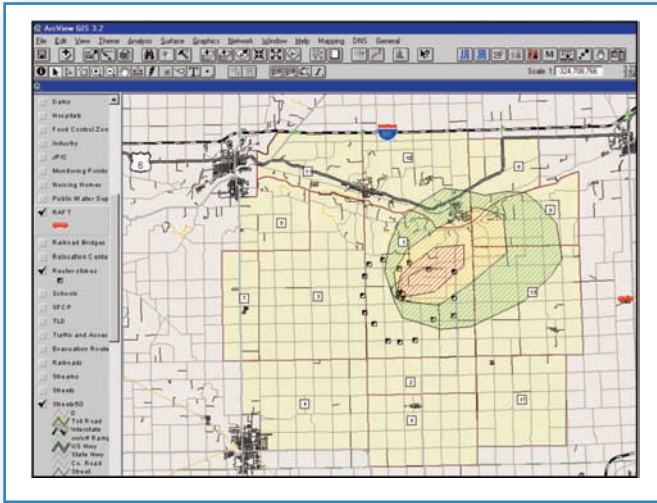


Reception Centers are set up at schools or other facilities that have separate men's and women's shower facilities. If someone were found to have radioactive contamination on them, they would be escorted to the shower facility. The individual would be monitored with hand-held instruments to find the exact extent of the contamination. Should a person be found to be contaminated, measures, including removal of the contaminated clothing, showering, or washing the affected area, would be implemented.



If someone were injured and thought they might be contaminated, IEMA is prepared to send a member of our Medical Radiation Technician team to assist

the hospital without interfering in any medical treatment. RTF personnel assist the hospital in establishing contamination control protocols to prevent the spread of contamination throughout the facility and assist with surveys of the patient.



In order to assess the impact in the area surrounding a nuclear power plant, a Geographic Information System or GIS is used. Its huge database of information is used to determine who will be affected by our protective action recommendations and what impact a radioactive material release is going to have on a community. The GIS database is overlaid on a detailed map of the area mapping system to present an overall summary of the impacts. A graphic overlay of the predicted radioactive plume is used to find out just what kind of facilities are affected. The GIS can overlay layers of data and combine them with output from our ALERT system and aerial photographs to give decision-makers a more complete picture of the incident impact.



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Printed by the Authority of the State of Illinois
IOCI 0132-09 - Web Revise - 3/11

